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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MEHTA, ASHWIN D	
ART UNIT	**PAPER NUMBER**
1638	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/753,526	IGARASHI ET AL.	
	Examiner	Art Unit	
	Ashwin Mehta	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22,24 and 26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22,24 and 26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1092004, 6242005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Page 19, lines 16-17 recites text that appears to be misplaced or not required.

Priority

2. Receipt is acknowledged of papers, Japanese patent application number 2001-208238, filed July 9, 2001, submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. This application also is a continuation of PCT/JP02/06766, filed July 4, 2002. It is noted that MPEP 1895.01 indicates that a certified copy of the international application is not necessary if it was published by the International Bureau pursuant to PCT Article 21. However, a certified copy and English language translation is required as intervening art was applied in a claim rejection (see below).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-13, 24, and 26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are broadly drawn towards any plant wherein the activity of glutamate glyoxylate aminotransferase (GGT) is lacked or reduced; or seed of said plant; or food containing said plant or seed.

The claims read on plants and seeds per se which can be found in nature and thus, is unpatentable to applicant. The plants and seeds as claimed have the same characteristics as naturally occurring plant and seeds that have lacked or reduced GGT activity. Naturally occurring gene mutations, or disruptions that occur naturally, can inhibit gene function. Claims 24 and 26 are included in this rejection as some naturally occurring plants and seeds are themselves consumable. See American Wood v. Fiber Disintegrating Co., 90 U.S. 566 (1974), American Fruit Growers v. Brodgex Co., 283 U.S. 2 (1931), Funk Brothers Seed Co. v. Kalo Inoculant Co., 33 U.S. 127 (1948), Diamond v. Chakrabarty, 206 USPQ 193 (1980). It is suggested that the claims be amended to identify a product that is not found in nature.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-22, 24, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1: the claim is indefinite because it is unclear what the claimed plant is being compared to, to determine that the GGT activity is reduced.

Further in claim 1: the recitation, "lacked" renders the claim indefinite. It is unclear what is encompassed by this recitation. For example, does it mean that GGT activity is entirely abolished, or can it encompass any amount of inhibition or reduction of activity?

In claim 14: the recitation, "defect or a reduction in the activity of glutamate glyoxylate transferase" renders the claim indefinite. It is unclear what the difference is supposed to be between a defect in GGT activity and a reduction in GGT activity, as the claim apparently distinguishes these two terms. Are defects that do not cause a reduction in GGT activity encompassed?

In claims 4 and 15: the recitation, "a function of a gene encoding a protein having the activity of glutamate glyoxylate aminotransferase is inhibited" renders the claims indefinite. The specification in the paragraph bridging pages 4-5 states, "The term "the function of a gene encoding glutamate glyoxylate aminotransferase (or GGT) as used herein indicates the function of a gene to express glutamate glyoxylate aminotransferase having the activity of wild type glutamate glyoxylate aminotransferase. Accordingly, an expression "the function of a gene encoding glutamate glyoxylate aminotransferase (or GGT) is inhibited involves, for example, a case wherein the gene itself is disrupted, a case wherein the expression of the gene is inhibited at the transcription or translation level and a case wherein the gene is modified and, as a result, the expressed protein has no activity of the wild type GGT. However, it is unclear which function the recitation is referring to." However, the recitation, "for example" does not limit the definition to only the recited examples. It is unclear what else can be considered "a function of a gene". This is especially unclear, as the specification apparently considers the act of translation of an mRNA transcript to be a gene function.

In claim 22: the claim is indefinite because it appears to be missing a step. The claim is directed to a method of producing a seed having increased glutamate content, comprising cultivating the plant of claim 1. However, claim 1 does not mention anything about increased glutamate content.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-22, 24, and 26 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an Arabidopsis plant comprising a T-DNA disrupted AlaAT1 gene, and seeds thereof, and a method of making said plant, does not reasonably provide enablement for other plants and seeds wherein glutamate glyoxylate aminotransferase (GGT) is lacked or reduced, or a method of increasing glutamate content in other plants and/or seeds. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The claims are broadly drawn towards any plant wherein the activity of GGT is lacked or reduced; or said plant wherein the glutamate content of said plant has increased; or said plant wherein any function of any gene encoding a protein having GGT activity is inhibited; or said plant wherein any gene encoding a protein having GGT activity is disrupted; or said plant wherein the GGT activity is in peroxisomes, or in peroxisomes of photosynthetic tissues; or said plant wherein the protein having the GGT activity has the sequence of residues 1-478 or 1-481 of

SEQ ID NO: 1; or seeds of a plant wherein the GGT activity is lacked or reduced; or food comprising said plant or seed; or a method of increasing the glutamate content in any plant and/or seed, comprising the step of causing any defect or reduction in GGT activity.

The specification asserts that glutamate is known as a tasty ingredient in various beans and tomato. The object of the invention is to provide a method of increasing glutamate content of plants and seeds by inhibiting GGT activity. Alanine aminotransferase (AlaAT) catalyzes the transfer of an amino group from alanine to form α-ketoglutarate, from alanine to form glyoxylate, and from glutamate to glyoxylate in the formation of glycine (page 1, lines 12-14; page 2, lines 3-9 and 23-27). The specification also asserts that AlaAT activity in peroxisomes has GGT activity, synthesizing α-ketoglutarate and glycine using glutamate and glyoxylate as substrates (page 2, lines 9-14). The specification states that AlaAT genes are also referred to as GGT genes (pages 12, lines 24-25). The specification indicates that Arabidopsis thaliana comprises AlaAT genes, named AlaAT1, 2, 3, and 4, and that according to EST data, AlaAT1 is the highest expressor. PCR primers were designed to screen an A. thaliana gene disruption library for a plant with the AlaAT1 gene disrupted. One line was isolated (Example 1). T2 lines were produced and screened for homozygosity of the disrupted gene. No full-length AlaAT mRNA was found in the disrupted line, and this line was named "aat1-1". Seeds of this mutant line were grown in "ordinary" and "weak" light conditions. No significant difference in growth of mutant seedlings in weak light was found, however, growth was seriously inhibited in ordinary light conditions, suggesting the aat1-1 mutant plant was damaged by photo inhibition (Example 2, pages 15-17). Protein extracts were obtained from the aat1-1 mutant plant and tested for all three reactions catalyzed by AlaAT. All three reactions were reduced in the mutant

plant (Example 2, pages 17-18). An amino acid analysis of extracts also showed that the amount of free glutamate was increased in the aat1-1 mutant plant (Example 2, pages 18-19). The free glutamate content of aat1-1 seeds was also found to be increased compared to wild type seeds (Example 3).

The claims encompass any plant that lacks any GGT activity or that has reduced GGT activity, and a method of increasing glutamate content in plants and/or seeds, comprising any step that causes any defect or reduction in activity of any GGT. The experiments in the working examples in the specification are also presented by Igarashi et al. (Plant J., 2003, Vol. 33, pages 975-987), who assert that GGT (which is referred to as "GGAT" in the reference) is localized to the peroxisome, and is synthesized in the cytosol with a peroxisome-targeting signal (page 976), and that AlaAT1 (which is referred to as "AOAT1" in the reference) is localized to the peroxisome (pages 976, 978). The specification also shows in Figure 6 that the synthesis of α-ketoglutarate from glutamate occurs in the peroxisome, and the specification (at page 18, lines 21-24) teaches that AlaAT1 is greatly involved in the synthesis of glycine to glyoxylate in this reaction, and is part of the photorespiration pathway. As is evident in Figure 6, reactions occurring in the chloroplast produce substrates for AlaAT1 in the peroxisome. As it is the peroxisome-localized AlaAT1 that has the GGT activity whose repression results in increased free glutamate content, and this reaction occurs in photosynthetic tissues, undue experimentation would be required by one skilled in the art, in the absence of further guidance, to make plants having increased glutamate content wherein non-peroxisome, non-photosynthetic tissue localized enzymes having GGT activity are inhibited. It is noted that claim 1 does not recite that glutamate content is to be increased in the claimed plant. However, this is the object of the

invention (page 2, lines 23-27), and therefore is an essential feature of the claimed invention. See MPEP 2164.08(c) and 2172.01. The specification does not teach how one skilled in the art is to use a plant lacking or having reduced GGT activity, wherein free glutamate content is not increased. It is also noted that claims 9 and 20 limit the protein having GGT activity to comprise amino acids 1-478 of SEQ ID NO: 1. The amino acid sequence set forth in SEQ ID NO: 1 consists of 481 residues. The specification is silent as to the significance of residues 479-481, which are serine, lysine, and methionine, respectively. However, Igarashi et al. teach that this tripeptide makes up a conserved "PTS1"-like sequence, which is a peroxisome-targeting signal (pages 976-979, Figure 1a). As the GGT activity whose reduction results in increased free glutamate resides in peroxisomes, undue experimentation would be required by one skilled in the art to increase glutamate content in plants by reducing the activity of a GGT that consists of residues 1-478 of SEQ ID NO: 1.

Further, the only gene identified by the specification whose disruption in expression leads to increased free glutamate content is the Arabidopsis AlaAT1 gene. The only plant enabled by the specification is the aat1-1 Arabidopsis mutant plant which comprises the homozygous T-DNA disrupted AlaAT1 gene. The specification indicates that three other AlaAT genes were identified in Arabidopsis. Igarishi et al. teach that only two of the Arabidopsis genes encode enzymes having a peroxisome-targeting signal (page 976). Igarishi et al. teach that the mRNA levels of the other gene encoding the enzyme with a peroxisome-localization sequence is much lower than AlaAT1 (AOAT1) in all organs (page 976). Further, the primers that were used to screen the gene disruption library were prepared from the AlaAT1 sequence (specification, page 13, lines 6-7). Primers that can be used to screen gene disruption libraries for disruption in the

other gene are not taught in the specification. Igarishi et al, assert that genes encoding enzymes with GGT (GGAT) activity have not been identified (previous to their report; page 976). In the absence of further guidance, undue experimentation would be required by one skilled in the art to disrupt the expression of unidentified genes encoding an enzyme having GGT activity. Undue experimentation is also required to disrupt genes encoding a protein having GGT activity in other plants, as other GGT-encoding genes have not been identified, as asserted by Igarishi et al.

The claims encompass plants and seeds in which GGT activity is lacked or reduced in any manner, and a method in which a defect or reduction in GGT activity is caused in any manner. The prior art teaches that GGT activity in leaves can be inhibited by treatment with glycidate (see the art rejection below). The claims also encompass disrupting a gene encoding a protein having GGT activity in any manner, or inhibiting any function of any such gene in any manner. However, the specification only teaches how to select an Arabidopsis plant for a T-DNA disruption in the AlaAt1 gene. The specification does not teach any other manner of inhibiting gene function or causing a disruption specifically in a gene encoding a protein having GGT activity. Mutagens, such as radiation, EMS, etc., cause random mutation events. The specification does not teach how one skilled in the art would use such strategies to cause mutations specifically in a gene encoding GGT, and such that it causes a reduction in expression of the gene or a reduction in activity of the enzyme. Further, as discussed above, genes encoding GGT were not identified in the prior art. The only gene identified in the specification is AlaAT1. Undue experimentation would be required for one skilled in the art to verify that any function of a GGT-encoding gene was inhibited, or the gene disrupted, if such genes have not even been identified. Furthermore, the specification does not teach how the sequence of the AlaAT1 gene

can be otherwise modified so that it no longer encodes a protein having GGT activity. Nothing at all is taught regarding the residues of this protein that are essential to its functional activity. No guidance is provided at all regarding what sort of modifications can be made to reduce the activity of the encoded enzyme. See Genentech, Inc. v. Novo Nordisk, A/S, 42 USPQ2d 1001, 1005 (Fed. Cir. 1997), which teaches that "the specification, not the knowledge of one skilled in the art" must supply the enabling aspects of the invention. Given the breadth of the claims, unpredictability of the art, and lack of guidance of the specification as discussed above, undue experimentation would be required by one skilled in the art to make and use the claimed invention.

6. Claims 1-22, 24, and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification describes the isolation of an A. thaliana mutant plant comprising a T-DNA disruption in the AlaAt1 gene, which encodes an enzyme having a peroxisome-localized GGT activity. Expression of the enzyme is reduced in the plant, and free glutamate content of the plant and seeds is increased, when compared to wild type plants and seeds (as discussed above).

The claims encompass any plant and seeds thereof, or a method of making said plant and seeds, wherein any GGT activity is reduced in any manner, or wherein any function of a gene

encoding a protein having GGT activity is inhibited, or wherein the gene is disrupted in any manner. However, the specification does not describe any plants or seeds thereof, in which a non-peroxisome-localized protein having GGT activity is inhibited, wherein the glutamate content has been increased. As shown in Figure 6, it is in peroxisomes that the GGT activity, which utilizes glutamate, occurs. Example 1 of the specification discusses the isolation of the AlaAt1-disrupted A. thaliana mutant, aat1-1. As discussed above, the experiments of the working examples are also presented in Igarashi et al., who teach that this gene encodes a peroxisome-localized enzyme. The instant specification does not reduce to practice any plant or seed with increased glutamate content in which a non-peroxisome localized GGT activity is reduced.

The claims also encompass inhibiting any function or expression of any gene, of any plant or seed, wherein the gene encodes a protein having GGT activity. However, the only such plant described by the specification is the A.thaliana aat1-1 mutant plant, in which the AlaAT1 gene is disrupted by T-DNA insertion. The specification does not reduce to practice any A. thaliana plants wherein expression or function of this gene is inhibited in any other manner. The specification also does not describe plants, or seeds thereof, of any other species wherein the function or expression of a gene encoding a GGT activity has been disrupted or inhibited. As discussed above, Igarashi et al. teach the first identification of a plant gene encoding a GGT activity. The prior art does not identify any plant genes encoding a GGT activity, and the only such plant gene identified in the specification is AlaAT1. The Federal Circuit provided the appropriate standard for written description in University of California v. Eli Lilly & Co. 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997). The court held that a structural description of a

rat cDNA was not an adequate description of broader classes of cDNAs, because a "written description of an invention involving a chemical genus, like a description of a chemical species, requires a precise definition, such as by structure, formula, [or] chemical name, of the claimed subjected matter sufficient to distinguish it from other materials. As other GGT-encoding plant genes have not been described, other plants having an inhibition in function of a GGT-encoding gene have not been described, as such genes have not been identified. Given the breadth of the claims encompassing any plant wherein any function of any gene encoding any protein having GGT activity is inhibited, and the description in the specification of the A.thaliana aat1-1 mutant plant, it is submitted that the specification fails to provide an adequate written description of the multitude of plants and seeds encompassed by the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1-22 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Igarashi et al. (Plant J., 2003, Vol. 33, pages 975-987). Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15 and MPEP 1895.01.

The claims are broadly drawn towards any plant wherein the activity of GGT is lacked or reduced; or said plant wherein the glutamate content of said plant has increased; or said plant

wherein any function of any gene encoding a protein having GGT activity is inhibited; or said plant wherein any gene encoding a protein having GGT activity is disrupted; or said plant wherein the GGT activity is in peroxisomes, or in peroxisomes of photosynthetic tissues; or said plant wherein the protein having the GGT activity has the sequence of residues 1-478 or 1-481 of SEQ ID NO: 1; or seeds of a plant wherein the GGT activity is lacked or reduced; or food comprising said plant or seed; or a method of increasing the glutamate content in any plant and/or seed, comprising the step of causing any defect or reduction in GGT activity.

Igarashi et al. teach the isolation of a mutant A. thaliana plant (termed "aoat1-1" in this reference) that contains a T-DNA insertion in a gene coding for a peroxisome-localized alanine aminotransferase, which also has glutamate glyoxylate aminotransferase (termed "GGAT" in this reference) activity. The enzyme in control plants is active in peroxisomes of photosynthetic tissues. The mRNA transcript could not be detected and GGAT activity was reduced in the mutant plant. Glutamate content is not less than 1.2 fold higher in the mutant plant compared to control plants cultivated under the same condition. The amino acid sequence encoded by the AOAT1 gene is the same as instant SEQ ID NO: 1. The T-DNA insertion mutant was used in crosses to obtain progeny, which indicates that seed of the plant were produced and harvested. That glutamate content of the seed increased less than 1.2 fold compared to seed of a wild type plant is a property that is inherent to the seed taught in the reference.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-4, 7, 8, 11, 14, 15, 18, 19, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawyer et al. (Plant Physiol., 1978, Vol. 61, pages 242-247).

The claims are broadly drawn towards any plant wherein the activity of GGT is lacked or reduced; or said plant wherein the glutamate content of said plant has increased; or said plant wherein any function of any gene encoding a protein having GGT activity is inhibited; or said plant wherein the GGT activity is in peroxisomes, or in peroxisomes of photosynthetic tissues; or seeds of a plant wherein the GGT activity is lacked or reduced; or food comprising said plant or seed; or a method of increasing the glutamate content in any plant and/or seed, comprising the step of causing any defect or reduction in GGT activity.

Lawyer et al. teaches inhibition of GGT activity in leaf discs, a photosynthetic tissue, by treatment with glycidate, which caused a 23% increase in glutamate content (pages 246-247), which is at least 1.2 fold higher than non-treated controls. The GGT activity is in peroxisomes (page 245). Lawyer et al. also assert that glycidate has been shown to decrease glycol ate synthesis and photorespiration, and increase net photosynthetic CO_2 fixation (page 242).

Lawyer et al. do not disclose seeds or inhibition of GGT activity in whole plants.

It would have been obvious and within the scope of one of ordinary skill in the art at the time the invention was made to modify the method of inhibiting GGT activity and increasing glutamate content by glycidate treatment of Lawyer et al. by treating whole plants with glycidate. One would have been motivated to do so, to further study the effects of inhibiting GGT activity

on photorespiration and photosynthetic CO_2 fixation in whole plants. Free glutamate content of the plant obviously also would have increased, as Lawyer et al. teach that glutamate content increases as a result of glycidate treatment and inhibition of GGT activity. It would have been obvious to inhibit GGT activity by glycidate treatment of any plant, including food plants such as spinach. The plant of choice depends on one's desired end. One of ordinary skill in the art would also have been motivated to collect seed from the plant, for the purpose of propagation. As it is unclear what exactly is meant by "a function of a gene" in claims 4 and 15 (see the indefinite rejection above), inhibition of GGT activity in plants by glycidate treatment can be considered an inhibition of gene function, insofar as a function of such a gene can be considered as providing GGT activity to a plant.

9. Claims 1-22, 24, and 26 are rejected.

Contact Information

Any inquiry concerning this or earlier communications from the Examiner should be directed to Ashwin Mehta, whose telephone number is 571-272-0803. The Examiner can normally be reached from 8:00 A.M to 5:30 P.M. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached at 571-272-0975. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300. Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as

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August 16, 2006

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